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Britton, Elizabeth Gertrude (Knight)

West Indian Mosses

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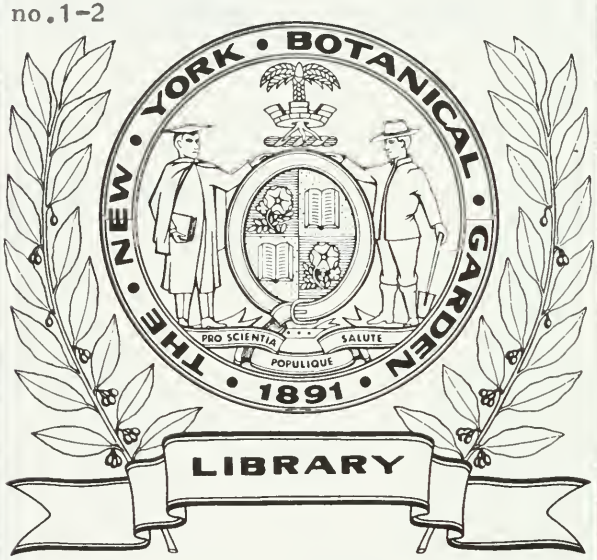

CONTRIBUTIONS FROM THE NEW YORK BOTANICAL GARDEN—No. 161

WEST INDIAN MOSSES—I

By ELIZABETH GERTRUDE BRITTON

NEW YORK
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[From the Bulletin of the Torrey Botanical Club 40: 653-676 6 J 1914.]

West Indian mosses—I

Elizabeth Gertrude Britton

(with plate 25)

A. West Indian mosses known to Linnaeus

In Linnaeus' Species Plantarum* 8 genera† and 103 species of mosses are recognized, of which only 2 are known to be tropical American in their distribution, ranging from southern Florida to South America. The first of these tropical species is *Bryum albidum* L. (p. 1118) known to Dillenius‡ as *Bryum nanum*, lariginis foliis albis, and now known as *Octoblepharum albidum* (L.) Hedw., with the type locality on the island of New Providence in the Bahamas.

The other species, *Rhizogonium spiniforme* (L.) Bruch was the first species of *Hypnum* named by Linnaeus and it also was based on a Dillenian description and plate.§ He called it "the *Herring's-Bone Hypnum*" and his specimens were sent to him from Mt. Diabolo, Jamaica, by Sir Hans Sloane. Its range through the tropics is even wider than that of *Octoblepharum*, including the Islands of the Pacific; both species are known to occur not only throughout the American tropics but also in Asia and Africa.

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* 1106–1130. 1753.

† 1. *Sphagnum* 2
2. *Phascum* 3
3. *Fontinalis* 4
4. *Splachnum* 3
5. *Polytrichum* 3
6. *Mnium* 18
7. *Bryum* 30
8. *Hypnum* 40
103

‡ Historia Muscorum 364. *pl. 46. f. 21.* 1741.

§ Historia Muscorum 332. *pl. 43. f. 68.* 1741.

[The Bulletin for November (40: 599–652. *portrait*) was issued 24 N 1913.]

1. OCTOBLEPHARUM ALBIDUM (L.) Hedw. Descr. 3: 15. 1791
Bryum albidum L. Sp. Pl. 1118. 1753.

TYPE LOCALITY: New Providence, Bahamas.

DISTRIBUTION: Florida and the Bahamas, throughout the West Indies: in Cuba, Jamaica, Haiti and St. Domingo, Porto Rico, Dominica, St. Thomas, St. Kitts, Montserrat, Guadeloupe, Martinique, St. Lucia, Grenada to Trinidad; also in South America and tropical regions of Africa and Asia.

ILLUSTRATIONS: Dill. Hist. Musc. *pl. 46. f. 21;* Hedw. Descr. 3: *pl. 6A;* Card. Rech. Anat. Leuc. *pl. 12. f. 61.*

EXSICCATAE: Sull. Musci Cub. Wright. *55.* 1861; Husnot, Pl. Ant. Fr. *121.* 1868; Austin, Musci App. Suppl. *478.* 1874; Ren. & Card. Musci Am. Sept. Exsicc. *213;* Holz. Musci Acroc. Bor. Am. *57;* Small, Mosses S. U. S. *52.*

2. RHIZOGONIUM SPINIFORME (L.) Bruch, Flora 29: 134. 1846
Hypnum spinaeforme L. Sp. Pl. 1122. 1753.
Mnium spiniforme C. Müll. Syn 1: 175. 1849.

TYPE LOCALITY: Mt. Diabolo, Jamaica, *Hans Sloane.*

DISTRIBUTION: In wet woods, in tropical regions of all portions of the world. Southern United States: Georgia, Alabama, Louisiana, Florida; Jamaica, Cuba, Haiti, Porto Rico, Guadeloupe to S. America; Mexico, Guatemala, Costa Rica, and Panama.

ILLUSTRATIONS: Sloane, Hist. Jam. *pl. 25. f. 4.* 1707; Dill. Hist. Musc. 332. *pl. 43. f. 8.* 1741.

EXSICCATAE: Sull. Musci Cub. Wright. *58.* 1861; Husnot, Pl. Ant. Fr. *152.* 1868; Austin, Musci App. Suppl. *516.* 1874; Ren. & Card. Musci Am. Sept. Exs. *64;* Holz. Musc. Acroc. Bor. Am. *174;* Pringle, Musci Mex. *10482.*

Another of the Linnaean species, *Hypnum cuspidatum* L., has been found in the high mountains of Jamaica. *Pogonatum urnigerum* L. Sp. Pl. 1109. 1753, was also credited to Jamaica, following Dillenius, who quotes Hans Sloane's History of Jamaica and mistook his *f. 5, pl. 25,* for this European species. *F. 4* of the same plate is unmistakable for *Rhizogonium spiniforme.*

B. WEST INDIAN MOSSES KNOWN TO OLOF SWARTZ

In his Prodromus, Swartz* retained 5 of the generic names

* Olof Swartz, Nova Genera & Species Plantarum seu Prodromus, etc. 138–142. 1788.

used by Linnaeus* and enumerated 41 species, which as at present recognized belong to 37 different genera, three of these having their type localities in Hispaniola (Haiti and Santo Domingo), all the rest in Jamaica.

In studying the collections made by Mr. Wm. Harris in Jamaica and our own later collections, a special effort has been made to obtain an accurate knowledge of these Swartz types and Dr. A. Le Roy Andrews, of Cornell University, very kindly consented, when he visited Stockholm in the summer of 1912, to examine these types for me and compare them with specimens from our own collections in Jamaica, sent as duplicates to the Naturhistoriska Riksmuseum. Dr. Andrews was able to see and compare the original specimens with ours in all but two cases: *Bryum parasiticum* Sw. [= *Syrrhopodon parasiticus* (Sw.) Besch.] and *Hypnum congestum* Sw. [= *Pleuropus congestus* (Sw.) Broth.], which species we have not yet been able to recognize, the former being from Hispaniola and the type lacking in Swartz' herbarium, the latter from Jamaica and Haiti. We suspect from the illustration given by Hedwig that the latter is probably referable to *Palamocladium Bonplandi* (Hook.) Broth., which Brotherus later refers to *Pleuropus*, though he states that he has not seen specimens of *Pleuropus congestus*.

In 1806 Swartz discarded his Linnaean limitations† and adopted some of the generic changes proposed by Hedwig (1792), to whom he sent specimens of most of his West Indian mosses, from which almost all of Hedwig's plates were drawn. This eliminated *Fontinalis* and *Mnium* from the West Indies and added seven genera‡ and three species to the list given in the Prodromus; he further amplified his list by giving more in detail the stations and habitats. These are translated and quoted in the following list of species in the sequence enumerated by Swartz, with their modern names, synonyms, and distribution as at present known to us from the West Indies:

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* *Fontinalis, Polytrichum, Mnium, Bryum,* and *Hypnum.*

† Fl. Ind. Occ. 3: 1759–1841. 1806.

‡ *Encalypta, Trichostomum, Tortula, Dicranum, Pterogonium, Neckera,* and *Leskea.*

1. **Neckera jamaicense** (Gmel.) E. G. Britton, comb. nov.

Fontinalis crispa Sw. Prod. 138. 1788. Not *Hypnum crispum* L. Sp. Pl. 1124. 1753.

Hypnum jamaicense Gmel. Syst. Nat. 2: 1341. 1791.

Neckera undulata Hedw. Descr. 3: 51. 1792.

Neckera undulata Hedw.; Sw. Fl. Ind. Occ. 3: 1780. 1806.

Neckeropsis undulata Kindb. Eu. & N. A. Bryin. 1: 20. 1897.

HABITAT AND TYPE LOCALITY: "On trunks of trees in dense low woods, Jamaica."

DISTRIBUTION: Not uncommon on trees from Florida and the Greater and Lesser Antilles to Trinidad; Mexico, Guatemala, and Panama; also in South America.

ILLUSTRATIONS: Dill. Hist. Musc. 294. *pl. 32. f. 8;* Hedw. Descr. *pl. 21* (from Swartz' type).

EXSICCATAE: Austin, Musci App. Suppl. *529;* Sull. Musci Cub. Wright. *75;* Husnot, Pl. Ant. Fr. *155;* Grout, N. A. Musci Pleur. *230*.

2. NECKERA DISTICHA (Sw.) Hedw. Descr. 3: 53. 1792

Fontinalis disticha Sw. Prod. 138. 1788.

Neckera disticha Hedw. Descr. 3: 53. 1792.

Neckera disticha Sw. Fl. Ind. Occ. 3: 1784. 1806.

Neckeropsis disticha Kindb. Eu. & N. A. Bryin. 1: 20. 1897.

HABITAT AND TYPE LOCALITY: On trunks of trees, Jamaica and Hispaniola.

DISTRIBUTION: Less common, on trees, Florida and the Greater and Lesser Antilles to South America; in Central America from Mexico to Panama; also in Africa.

ILLUSTRATION: Hedw. Descr. *pl. 22* (from Swartz' type).

EXSICCATAE: Austin, Musci App. Suppl. *530*.

3. PTEROBRYUM FILICINUM (Sw.) Mitt. Jour. Linn. Soc. 12: 425. 1869

Fontinalis filicina Sw. Prod. 138. 1788.

Neckera filicina Hedw. Descr. 3: 45. 1792.

Pilotrichum filicinum P. Beauv. Prod. 83. 1805.

Neckera filicina Sw. Fl. Ind. Occ. 3: 1788. 1806.

Pireella filicina Cardot, Rev. Bryol. 40: 18. 1913.

HABITAT AND TYPE LOCALITY: "Near Coldspring, high mountains of southern Jamaica, on trunks of trees."

DISTRIBUTION: Jamaica and Cuba.

ILLUSTRATION: Hedw. Descr. *pl. 18* (from Swartz' type).

EXSICCATAE: Sull. Musci Cub. Wright. *76*.

This species has immersed capsules and seems to belong where Mitten has placed it.

4. PILOTRICHUM HYPNOIDES (Sw.) P. Beauv. Prod. 83. 1805

Fontinalis hypnoides Sw. Prod. 138. 1788.
Neckera hypnoidea Hedw. Descr. 3: 43. 1792.
Neckera hypnoides Sw. Fl. Ind. Occ. 3: 1790. 1806.

HABITAT AND TYPE LOCALITY: "Jamaica, on trunks of trees in high mountains."

DISTRIBUTION: Jamaica to Trinidad.

ILLUSTRATION: Hedw. Descr. *pl. 17* (from Swartz' type).

5. CRYPHAEA FILIFORMIS (Sw.) Brid. Bryol. Univ. 2: 251. 1827

Fontinalis filiformis Sw. Prod. 138. 1788.
Neckera filiformis Hedw. Descr. 3: 41. 1792.
Neckera filiformis Sw. Fl. Ind. Occ. 3: 1786. 1806.

HABITAT AND TYPE LOCALITY: "Hispaniola, in arid regions on branches of *Haematoxylon campechianum*."

DISTRIBUTION: Jamaica, Cuba, and Santo Domingo; also in South America, Central America and Mexico (Guatemala and Yucatan).

ILLUSTRATION: Hedw. Descr. *pl. 16* (from Swartz' type).

EXSICCATAE: Sull. Musci Cub. Wright. *67*.

6. POGONATUM TORTILE (Sw.) Brid. Bryol. Univ. 2: 108. 1827

Polytrichum convolutum Sw. Prod. 139. 1788. Not L. 1753.
Polytrichum convolutum Hedw. Sp. Musc. 94. 1801.
Pogonatum convolutum Beauv. Prod. 85. 1805.
Polytrichum tortile Sw. Fl. Ind. Occ. 3: 1839. 1806.
Polytrichum domingense Brid. Mant. 201. 1819.
Polytrichum cubense Sull. Proc. Am. Acad. 5: 281. 1861.
Polytrichum glaucinum Besch. Ann. Sci. Nat. VI. 3: 210. 1876.
Polytrichum Husnotianum Besch. l. c.
Polytrichum crispulum Besch. l. c. 211.

Polytrichum laxifolium Besch. l. c. 211.
Polytrichum Pleeanum Besch. l. c. 212.
Polytrichum Sintenisii C. Müll. Hedwigia 37: 222. 1898.
Polytrichum (*Catharinella*) *obscuro-viridis* C. Müll. Hedwigia 37: 223. 1898.

HABITAT AND TYPE LOCALITY: "On clay banks, high mountains of southern Jamaica."

DISTRIBUTION: Cuba, Jamaica, Haiti, Porto Rico, Guadeloupe, Martinique, Dominica, Grenada, and Barbados.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 20.*

EXSICCATAE: Sull. Musci Cub. Wright. *57;* Husnot, Pl. Ant. Fr. *153.*

This species varies greatly according to habitat, whether dry or wet, sunny or shady. It usually grows on roadside banks of the hard red clay, on the dry or southern sides of the West Indian islands and under such conditions, does not attain the lax, long leaves that are produced in shady moist valleys. Microscopic sections of the leaves show the lamellae to be somewhat variable but all of one generally uniform character, and though the serrations of the margins are more or less variable, the teeth being at times appressed and at others spreading, we find no constant differences between them. The presence of teeth on the back of the costa is just as true of *P. tortile* Sw. as of *P. glaucinum* Besch.

7. BREUTELIA TOMENTOSA (Sw.) Sch. "In Hb." Paris, Index Bryol. 1: ed. 2. 173. 1904

Mnium tomentosum Sw. Prod. 139. 1788.
Bryum tomentosum Sw. Fl. Ind. Occ. 3: 1837. 1806.
Bartramia macrocarpa Hampe, Linnaea 32: 141. 1863.
Bartramia macrotheca Hampe, Ann. Sci. Nat. V. 3: 373. 1866.
Breutelia macrotheca Jaeg. Adumb. 1: 556. 1873–74.

HABITAT AND TYPE LOCALITY: " On the edge of woods high mountains of Jamaica."

DISTRIBUTION: Jamaica and Guadeloupe to South America; also Mexico and Costa Rica.

ILLUSTRATIONS: Hooker, Musci Exot. *pl. 19.* 1818. From original specimen of Swartz. E. & P. Nat. Pfl. 1^3: 656. *f. 498.* 1904.

8. PHILONOTIS SPHAERICARPA (Sw.) Brid. Bryol. Univ. 2: 25. 1827

Mnium sphaericarpon Sw. Prod. 139. 1788.
Mnium sphaericarpum Hedw. Descr. 3: 93. 1792.
Bryum sphaericarpon Sw. Fl. Ind. Occ. 3: 1835. 1806.
Bartramia sphaericarpa Mitt. Jour. Linn. Soc. 12: 261. 1869.

HABITAT AND TYPE LOCALITY: "In shady mossy places, summits of mountains of southern Jamaica."

DISTRIBUTION: Florida, Jamaica, Porto Rico, St. Thomas, St. Kitts, St. Vincent, Martinique, and Guadeloupe; Honduras to South America.

ILLUSTRATION: Hedw. Descr. 3: *pl. 38A*.

9. DITRICHUM RUFESCENS (Hampe) Broth. in E. & P. Nat. Pfl. 1^3: 300. 1901

Mnium strictum Sw. Prodr. 139. 1788. Not *Ditrichum strictum* Hampe. 1867.
Trichostomum strictum Sw. Fl. Ind. Occ. 3: 1761. 1806.
Trichostomum pallidum strictum Schwaegr. Suppl. 2^1: 77. 1823.
Leptotrichum rufescens Hampe, Linnaea 31: 521. 1862.
Cynontodium strictum Mitt. Jour. Linn. Soc. 12: 42. 1869.
Cynontodium rufescens Mitt. Jour. Linn. Soc. 12: 44. 1869.
Leptotrichum mexicanum Sch.; Besch. Mém. Soc. Sci. Nat. Cherbourg 16: 174. 1872.
Leptotrichum capillifolium Sch.; Jaeg. Adumb. 1: 388. 1871–72.
Leptotrichum pseudo-rufescens C. Müll. Bull. Herb. Boiss. 5: 554. 1897.

HABITAT AND TYPE LOCALITY: "Jamaica, on shady slopes in sandy wet soil among other mosses, cold places."

DISTRIBUTION: Jamaica, 1,500–2,100 meters. Also, Mexico to Colombia.

ILLUSTRATION: Schwaegr. Suppl. *pl. 123*.

10. TORTULA AGRARIA (Sw.) Sw. Fl. Ind. Occ. 3: 1763. 1806

Bryum agrarium Sw. Prod. 139. 1788.
Bryum acuminatum Sw. Prod. 139. 1788.
Barbula agraria Hedw. Descr. 3: 17. 1792.
Barbula Raui Aust. Bull. Torrey Club 6: 43. 1875.

HABITAT AND TYPE LOCALITY: "Jamaica and Hispaniola, in sugar fields and on calcareous rocks."

DISTRIBUTION: Florida and Texas. Common in the Bahamas on limestone rocks, whence it was known to Dillenius. Jamaica, Cuba, Porto Rico, Guadeloupe, Antigua, Montserrat to Trinidad and South America; also in Mexico.

ILLUSTRATION: Hedw. Descr. *pl. 6B*, from original specimens collected by Swartz in Jamaica and Santo Domingo.

11. BRYUM ACUMINATUM Sw. Prod. 139. 1788.
(See 10)

12. SYRRHOPODON LYCOPODIOIDES (Sw.) C. Müll. Syn. 1: 538. 1849

Bryum lycopodioides Sw. Prod. 139. 1788.

Dicranum? lycopodioides Sw. Fl. Ind. Occ. 3: 1766. 1806.

HABITAT AND TYPE LOCALITY: "Jamaica; in moist shady woods, on high mountains."

DISTRIBUTION: Jamaica, Santo Domingo, Haiti, Porto Rico, Guadeloupe, and Martinique to Trinidad.

EXSICCATAE: Husnot, Pl. Ant. Fr. *151*.

13. SYRRHOPODON PARASITICUS Besch. Ann. Sci. Nat. VIII. 1: 298. 1895

Bryum parasiticum Sw. Prod. 139. 1788.

Encalypta parasitica Sw. Fl. Ind. Occ. 3: 1759. 1806.

Calymperes parasitica Hook. & Grev. Edinb. Jour. Sci. 1: 131. 1824.

The type cannot be found at Stockholm in Swartz' herbarium. A fragment of the type specimen exists at Kew, and Mitten had only two leaves of it. He states that it is very close to *Calymperes Richardi* but the illustration given by Schwaegrichen of the calyptra and the description given by Swartz, "*Calyptra longa subulata, non laxa, pallida, ore aequali, latere demum fissili*" disprove this, and it is evident, either that Schwaegrichen was mistaken in figuring a calyptra which resembles that of a *Macromitrium* or it is a species of that genus, which is very common in Jamaica. Mitten referred a specimen collected by R. Spruce in South America (no. 2) to this species but that proves to be a true *Calymperes*.

The duplicate type from which Schwaegrichen's plate was drawn has been loaned to us from Geneva and corresponds with all of this plate except the calyptra, which is lacking; but the hyaline basal cells are not clearly indicated. It is evidently a species of *Syrrhopodon* with entire leaf margins bordered by elongated cells and does not agree with any known to us thus far from the West Indies.

HABITAT AND TYPE LOCALITY: Hispaniola. "On branches of *Haematoxylon* and *Mimosa Unguis-cati*."

DISTRIBUTION: Known only from the original collection.

ILLUSTRATION: Schwaegr. Suppl. 1: 60. *pl. 17.* 1811.

14. HOLOMITRIUM CALYCINUM (Sw.) Mitt. Jour. Linn. Soc. 12: 60. 1869

Bryum calcycinum Sw. Prod. 139. 1788.
Weisia calycina Hedw. Sp. Musc. 70. 1801.
Cecalyphum? calicinum Beauv. Prod. Aetheog. 50. 1805.
Dicranum calycinum Sw. Fl. Ind. Occ. 3: 1768. 1806.

HABITAT AND TYPE LOCALITY: "On roots of trees in high mountains. Jamaica."

DISTRIBUTION: Known only from Jamaica.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 14. f. 1–5.*

15. FISSIDENS PALMATUS (Sw.) Hedw. Descr. 3: 69. 1792

Hypnum palmatum Sw. Prod. 140. 1788.
Dicranum palmatum Sw. Fl. Ind. Occ. 3: 1774. 1806.
Skitophyllum palmatum De la Pyl. Jour. de Bot. II. 4: 146. 1814.

HABITAT AND TYPE LOCALITY: "In shady clayey places at roots of palms. Jamaica. Collected also on high trunk of *Areca oleracea*, in a cavity filled with rotten leaves."

DISTRIBUTION: Jamaica, Cuba, and St. Thomas.

ILLUSTRATIONS: Hedw. Descr. *pl. 30A.* 1792 (from Swartz' type); De la Pyl. Jour. de Bot. *pl. 35. f. 6.* 1814.

EXSICCATAE: Sull. Musci Cub. Wright. *11.*

16. FISSIDENS POLYPODIOIDES (Sw.) Hedw. Descr. 3: 63. 1792

Hypnum polypodioides Sw. Prod. 140. 1788.
Dicranum polypodioides Sw. Fl. Ind. Occ. 3: 1772. 1806.
Skitophyllum polypodioides De la Pyl. Jour. de Bot. II. 3: 153. 1814.

HABITAT AND TYPE LOCALITY: "On the ground in shady mossy slopes in high mountains, Jamaica."

DISTRIBUTION: Georgia, Alabama, Florida, and Louisiana; Jamaica, Cuba, Haiti, Porto Rico; Dominica, Guadeloupe, and Martinique, to South America; also, Mexico, Guatemala, and Panama.

ILLUSTRATIONS: Sull. Icon. Musc. *pl. 27;* De la Pyl. l. c. *pl. 38. f. 10.*

EXSICCATAE: Drummond, Musci Am. ed. 2. *38;* Sull. & Lesq. Musci Bor. Am. ed. 2. *87*: Sull. Musci Cub. Wright. *10;* Small, Mosses So. U. S. *9;* Husnot, Pl. Ant. Fr. *133.*

17. FISSIDENS ASPLENIOIDES (Sw.) Hedw. Descr. 3: 65. 1792

Hypnum asplenioides Sw. Prod. 140. 1788.

Dicranum asplenioides Sw. Fl. Ind. Occ. 3: 1770. 1806.

Skitophyllum asplenioides De la Pyl. Jour. de Bot. II. 4: 156. 1814.

Fissidens Barbae-montis C. Müll.; Ren. & Card. Bull. Soc. Roy. Bot. Belg. 31[1]: 152. 1892.

Fissidens costaricensis Besch. Bull. Herb. Boiss. 2: 390. 1894.

HABITAT AND TYPE LOCALITY: "On mossy rocks in high mountains of Jamaica."

DISTRIBUTION: Jamaica and St. Kitts; also Mexico and Costa Rica.

ILLUSTRATIONS: Hedw. Descr. *pl. 28* (from type); De la Pyl. Jour. de Bot. II. 4: *pl. 38. f. 8, 9.*

EXSICCATAE: Pringle, Musci Mex. *10,503.*

18. PHYLLOGONIUM FULGENS (Sw.) Brid. Bryol. Univ. 2: 671. 1827

Hypnum fulgens Sw. Prod. 140. 1788.

Pterigynandrum fulgens Hedw. Descr. 4: 101. 1797.

Pterogonium fulgens Sw. Fl. Ind. Occ. 3: 1776. 1806.

? *Phyllogonium viride* Brid. Bryol. Univ. 2: 673. 1827.

Phyllogonium aureum Mitt. Journ. Linn. Soc. 12: 424. 1869.

Phyllogonium globitheca C. Müll. Bull. Herb. Boiss. 5: 563. 1897.

HABITAT AND TYPE LOCALITY: "Dependent from branches of trees in high mountains of Jamaica."

DISTRIBUTION: Jamaica, Cuba, Haiti, Porto Rico, St. Kitts, Antigua, Montserrat, Guadeloupe, Martinique, St. Vincent, and Grenada to Trinidad. Also in South America.

ILLUSTRATION: Hedw. Descr. *pl. 39* (from type).

EXSICCATAE: Sull. Musci Cub. Wright. *131;* Husnot, Pl. Ant. Fr. *154.*

There is some doubt as to what the type specimen of *Phyllogonium viride* of Bridel is. The type locality is Brazil and it is just possible that the name may antedate either *P. immersum* Mitt. or *P. Serra* C. Müll. Both these species were distributed by E. Ule in his Bryotheca Brasiliensis no. 81 from Serra Geral, Province of Santa Catharina, Brazil. All the West Indian specimens, so-called, are referable to *P. fulgens.*

19. LEPIDOPILUM DIAPHANUM (Sw.) Mitt. Jour. Linn. Soc. 12: 382. 1869

Hypnum diaphanum Sw. Prod. 140. 1788.
Hypnum diaphanum Hedw. Sp. Musc. 243. 1801.
Hypnum? diaphanum Sw. Fl. Ind. Occ. 3: 1828. 1806.
Pterygophyllum diaphanum Brid. Bryol. Univ. 2: 345. 1827.
Hookeria diaphana W.-Arn. Disp. Musc. 56. 1825.

HABITAT AND TYPE LOCALITY: "In depressions, mountains of Jamaica. Mixed with *Marchantia* and *Jungermannia.*"

DISTRIBUTION: Jamaica, Martinique.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 61. f. 1–6* (from type).

20. CYCLODICTYON ALBICANS (Sw.) Broth. in E. & P. Pfl. 1^3: 935. 1907

Hypnum albicans Sw. Prod. 140. 1788.
Hypnum albens Gmel. Syst. Nat. 2: 1343. 1791.
Leskea albicans Hedw. Sp. Musc. 218. 1801.
Leskea albicans Sw. Fl. Ind. Occ. 3: 1811. 1806.
Hypnum pallidum Brid. Musc. Rec. 2^2: 127. 1806.
Pterygophyllum albicans Brid. Bryol. Univ. 2: 349. 1827.

HABITAT AND TYPE LOCALITY: "On old and rotten trunks of trees, temperate regions of Jamaica."

DISTRIBUTION: Jamaica, Guadeloupe, St. Vincent, and Mexico.

ILLUSTRATIONS: Hedw. Sp. Musc. 218. *pl. 54. f. 13–16* (from type).

EXSICCATAE: Pringle, Musci Mex. *10,664.*

21. HOMALIA GLABELLA (Sw.) Mitt. Jour. Linn. Soc. 12: 458. 1869

Hypnum glabellum Sw. Prod. 140. 1788.
Leskea glabella Hedw. Sp. Musc. 235. 1801.
Neckera glabella Sw. Fl. Ind. Occ. 3: 1782. 1806.

HABITAT AND TYPE LOCALITY: "On trunks of trees in mountains of Jamaica."

DISTRIBUTION: Jamaica, Porto Rico, Guadeloupe, Mexico, Costa Rica, to Venezuela.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 59* (from type specimens).

22. METEORIOPSIS PATULA (Sw.) Broth. in E. & P. Pfl. 1^3: 825. 1906

Hypnum patulum Sw. Prod. 140. 1788.
Hypnum patulum Hedw. Sp. Musc. 279. 1801.
Hypnum? patulum Sw. Fl. Ind. Occ. 3: 1832. 1806.
Leskea remotifolia C. Müll. Linnaea 19: 216. 1847.
Meteorium stellatum Lorentz, Moosst. 165. 1864.
Meteorium flaccidum Mitt. Jour. Linn. Soc. 12: 443. 1869.
Meteorium tenue Sch. Besch. Mém. Soc. Sc. Nat. Cherbourg 16: 227. 1872.
Meteorium diversifolium Besch. l. c.
Meteorium torticuspis C. Müll. Bull. Herb. Boiss. 5: 204. 1897.

HABITAT AND TYPE LOCALITY: "On roots and branches of trees near the summits, mountains of Jamaica."

DISTRIBUTION: Florida, in hammocks near Cutler, *J. K. Small;* Jamaica, Haiti, Porto Rico, Guadeloupe, Martinique, Dominica, Montserrat, St. Vincent, Grenada, and Trinidad to South America; also Mexico, Guatemala, Honduras, Costa Rica, and Panama.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 73.*

EXSICCATAE: Sull. Musci Cub. Wright. *80;* Husnot, Pl. Ant. Fr. *168;* Pringle, Musci Mex. *15,136.*

This is a common and variable species in the tropics and accordingly has received a variety of names. There seems to be no reason for maintaining two sections and such a host of names in this genus, for according to Mitten and R. S. Williams the following also are synonyms of this species: *M. aureo-nitens* Hampe (not Hook.), *M. barbipendulum* C. Müll.; *M. cirrifolium* Schw.,

M. chiriquense Ltz., *M. Eurhynchium* C. Müll., *M. Filicis* C. Müll., and *M. subambiguum* (Hampe) Paris.

23. MITTENOTHAMNIUM REPTANS (Sw.) Card. Rev. Bryol. 40: 21. 1913

Hypnum reptans Sw. Prod. 140. 1788.
Hypnum reptans Hedw. Sp. Musc. 265. 1801.
Hypnum reptans Sw. Fl. Ind. Occ. 3: 1819. 1806.
Microthamnium reptans Mitt. Jour. Linn. Soc. 12: 506. 1869.
Hypnum pseudo-reptans C. Müll. Bot. Zeit. 14: 439. 1856.
Microthamnium Turckheimii C. Müll. Bull. Herb. Boiss. 5: 215. 1897.
Microthamnium minusculum C. Müll. Bull. Herb. Boiss. 5: 565. 1897.
Stereohypnum reptans Fleisch. Hedwigia 47: 275. 1908.

HABITAT AND TYPE LOCALITY: "On earth and trunks of trees, interior of Jamaica."

DISTRIBUTION: Cuba, Jamaica, Guadeloupe, Martinique, Mexico, Guatemala, Nicaragua, Costa Rica, Panama, and South America.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 68.*

24. POROTRICHUM FASCICULATUM (Sw.) Mitt. Jour. Linn. Soc. 12: 468. 1869

Hypnum fasciculatum Sw. Prod. 140. 1788.
Hypnum fasciculatum Hedw. Sp. Musc. 245. 1801.
Hypnum? fasciculatum Sw. Fl. Ind. Occ. 3: 1827. 1806.
Thamnium fasciculatum C. Müll. Hedwigia 37: 260. 1898.

HABITAT AND TYPE LOCALITY: "On roots of trees; high mountains of Jamaica."

DISTRIBUTION: Jamaica, Porto Rico, and Trinidad to South America.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 62. f. 8–10* (from Swartz' specimens).

25. HYPOPTERYGIUM TAMARISCI (Sw.) Brid. Bryol. Univ. 2: 715. 1827

Hypnum Tamarisci Sw. Prod. 141. 1788.
Leskea Tamariscina Hedw. Sp. Musc. 212. 1801.

Hypnum Tamarisci Sw. Fl. Ind. Occ. 3: 1825. 1806.
Hypopterygium brasiliense Sull. U. S. Expl. Exp. 26. 1859.
?*Hypopterygium pseudo-tamarisci* C. Müll. Linnaea 38: 645. 1874.

HABITAT AND TYPE LOCALITY: "On trunks of trees, creeping among mosses in the cold regions of Jamaica."

DISTRIBUTION: Jamaica, Cuba, Haiti, and Porto Rico; also in Mexico, Guatemala, Costa Rica, and South America.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 62. f. 8–10;* Sull. U. S. Expl. Exped. *pl. 26.*

EXSICCATAE: Sull. Musci Cub. Wright. *130;* Pringle, Musci Mex. *10,497.*

26. PILOTRICHELLA FLEXILIS (Sw.) Jaeg. Adumb. 2: 162. 1875–76

Hypnum flexile Sw. Prod. 141. 1788.
Leskea flexilis Hedw. Sp. Musc. 234. 1801.
Hypnum? flexile Sw. Fl. Ind. Occ. 3: 1830. 1806.
Meteorium flexile Mitt. Jour. Linn. Soc. 12: 438. 1869.
Neckera cochlearifolia C. Müll. Syn. 2: 130. 1851.
Neckera turgescens C. Müll. Syn. 2: 131. 1851.
Pilotrichella eroso-mucronata C. Müll. Bull. Herb. Boiss. 5: 563. 1897.
Pilotrichella recurvo-mucronata C. Müll. Bull. Herb. Boiss. 5: 563. 1897.

HABITAT AND TYPE LOCALITY: "Summits of mountains in Southern Jamaica."

DISTRIBUTION: Jamaica, Cuba, Haiti, Porto Rico, Guadeloupe; Mexico, Guatemala, Nicaragua, Costa Rica, Panama; Colombia, Ecuador, Bolivia, and Brazil.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 58.*

EXSICCATAE: Pringle, Musci Mex. *10,420, 10,468,* Grout, N. A. Musci Pleur. *389.*

27. PAPILLARIA NIGRESCENS (Sw.) Jaeg. Adumb. 1: 169. 1875–76

Hypnum nigrescens Sw. Prod. 141. 1788.
Hypnum nigrescens Hedw. Sp. Musc. 250. 1801.
Pterogonium nigrescens Sw. Fl. Ind. Occ. 3: 1778. 1806.
Neckera nigrescens Schwaegr. Suppl. 3^2. 1828.

Meteorium nigrescens Mitt. Jour. Linn. Soc. 12: 441. 1869.
Papillaria nigrescens Donnellii Aust. Musci App. Suppl. 14. 1898.

HABITAT AND TYPE LOCALITY: "On branches of trees, high mountains of Jamaica. Collected on *Anacardium occidentale*."

DISTRIBUTION: Louisiana, Florida, and the Bahamas; Jamaica, Cuba, Haiti, Porto Rico, Barbados, and Trinidad to South America; also in Lower California, Mexico, Guatemala, Costa Rica, and Panama. Also in South America.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 65*. 1801; Schwaegr. Suppl. *pl. 244*. 1828; Bryologist 7: 14. 1904.

EXSICCATAE: Austin, Musci App. Suppl. *533*, Sull. Musci Cub. Wright. *83*.

The var. *Donnellii* is simply a xerophytic condition in which the leaves fall off and the terminal branches become brittle, thus propagating the species; in fact, the fruit is seldom found. Austin and J. D. Smith collected it at Caloosa, Florida, in 1876–78 and Mr. Severin Rapp has reported it from Sanford. In all our Jamaica collections I have found it but once, on a calabash tree.

28. PRIONODON DENSUS (Sw.) C. Müll. Bot. Zeit. 2: 130. 1844
Hypnum densum Sw. Prod. 141. 1788.
Hypnum densum Hedw. Sp. Musc. 282. 1801.
Hypnum? densum Sw. Fl. Ind. Occ. 3: 1829. 1806.
Neckera crassa Hornsch. Fl. Brasil. 1: 56. 1840.
Pilotrichum densum C. Müll. Syn. 2: 160. 1850.

HABITAT AND TYPE LOCALITY: "In Blue Mountains, southern Jamaica, on roots of trees."

DISTRIBUTION: Jamaica, Cuba, Haiti, Mexico, Costa Rica, and Panama, 1,500–2,000 ft.; also in South America.

ILLUSTRATION: Hedw Sp. Musc. *pl. 74* (from Swartz' type); Bot. Zeit. 2: *pl. 1*.

EXSICCATAE: Pringle, Musci Mex. *10,483*.

29. PILOTRICHUM COMPOSITUM (Sw.) P. Beauv. Prod. 82. 1805
Hypnum compositum Sw. Prod. 141. 1788.
Neckera composita Hedw. Sp. Musc. 203. 1801.
Neckera composita Sw. Fl. Ind. Occ. 3: 1792. 1806.

HABITAT AND TYPE LOCALITY: "On trunks of trees in woods, interior of Jamaica."

DISTRIBUTION: Jamaica and Grenada ("Costa Rica"?).

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 16. f. 8–13* (from Swartz' type).

30. LEPIDOPILUM POLYTRICHOIDES (Sw.) Brid. Bryol. Univ. 2; 269. 1827

Hypnum polytrichoides Sw. Prod. 141. 1788.
Hypnum polytrichoides Hedw. Sp. Musc. 244. 1801.
Orthotrichum polytrichoides Brid. Musc. Recent. 2^2: 31. 1801.
Neckera polytrichoides Sw. Fl. Ind. Occ. 3: 1794. 1806.
Lepidopilum polytrichoides var. *costaricense* Ren. & Card. Bull. Soc. Roy. Bot. Belg. 32^1: 192. 1893.
Hookeria Carionis C. Müll. Bull. Herb. Boiss. 5: 205. 1897.

HABITAT AND TYPE LOCALITY: "On branches of trees and shrubs, also on rocks, mountains of Jamaica and Hispaniola."

DISTRIBUTION: Jamaica, Cuba, Haiti, Porto Rico, Guadeloupe, Martinique, Montserrat, and St. Vincent to South America: also, Mexico, Guatemala, Costa Rica, and Panama.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 61* (from Swartz' type); Schwaegr. Suppl. 3: *pl. 231.*

EXSICCATAE: Husnot, Pl. Ant. Fr. *156.*

31. HELICODONTIUM CAPILLARE (Sw.) Jaeg. Adumb. 2: 225. 1876–77

Hypnum capillare Sw. Prod. 141. 1788.
Leskea capillaris Hedw. Descr. 4: 25. 1793.
Leskea capillaris Sw. Fl. Ind. Occ. 3: 1813. 1806.

HABITAT AND TYPE LOCALITY: "On trunks of trees, interior of Jamaica."

DISTRIBUTION: Jamaica, Cuba, Haiti, Porto Rico; also in Mexico and South America.

ILLUSTRATION: Hedw. Descr. 4: *pl. 10.*

EXSICCATAE: Sull. Musci Cub. Wright. *70;* Pringle, Musci Mex. *759.*

32. RHACOPILUM TOMENTOSUM (Sw.) Brid. Bryol. Univ. 2: 719. 1827

Hypnum tomentosum Sw. Prod. 141. 1788.
Hypnum tomentosum Hedw. Descr. 4: 48. 1793.
Hypnum tomentosum Sw. Fl. Ind. Occ. 3: 1823. 1806.
Rhacopilum tomentosum var. *gracile* Besch. Mém. Soc. Sci. Nat. Cherbourg. 16: 257. 1872.

HABITAT AND TYPE LOCALITY: "On roots of trees near rivers, temperate regions of Hispaniola."

DISTRIBUTION: Louisiana, Bermuda, Cuba, Jamaica, Haiti, Santo Domingo, Guadeloupe, to Trinidad and South America; Mexico, Costa Rica, Guatemala, Nicaragua, and Panama; also in Asia and Africa.

ILLUSTRATIONS: Hedw. Descr. *pl. 19;* Bryologist 10: *pl. 5.*

EXSICCATAE: Sull. Musci Cub. Wright. *74;* Pringle, Musci Mex. *10,501.*

33. CALLICOSTELLA DEPRESSA (Sw.) Jaeg. Adumb. 2: 352. 1875–76

Hypnum depressum Sw. Prod. 141. 1788.
Leskea depressa Hedw. Sp. Musc. 215. 1801.
Leskea depressa Sw. Fl. Ind. Occ. 3: 1804. 1806.

HABITAT AND TYPE LOCALITY: "On bark of trees, mountains of Jamaica."

DISTRIBUTION: Jamaica, Cuba, Porto Rico, Haiti, and Guadeloupe.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 53. f. 1–7* (from Swartz' type).

34. **Clastobryum trichophyllum** (Sw.) E. G. Britton, comb. nov. PLATE 25

Hypnum trichophyllum Sw. Prod. 141. 1788.
Hypnum trichophyllum Hedw. Sp. Musc. 274. 1801.
Neckera trichophylla Sw. Fl. Ind. Occ. 3: 1798. 1806.
Lepyrodon trichophyllus Mitt. Jour. Linn. Soc. 12: 422. 1869.
Leucodon trichophyllus Jaeg. Adumb. 2: 122. 1877.
Lepyrodon trichophyllus robustior Besch. Ann. Sci. Nat. VI. 3: 224. 1876.

Palamocladium trichophyllum C. Müll. Flora 82: 465. 1896.
Palamocladium trichophyllum subtile C. Müll. Hedwigia 37: 240. 1898.
Orthothecium trichophyllum Fleisch. Fl. Buit. 3: 667. 1906.

Plants light yellowish green, glossy; stems rooting and creeping, with simple erect branches, often 2 cm. high and prolonged into slender flagellate branchlets bearing brown septate gemmae in clusters in the axils of the upper leaves; branch-leaves crowded, spreading, glossy, strongly plicate when dry, lanceolate-acuminate, 3–5 mm. long, ecostate, margins plane, serrate; cells linear, walls porose, slightly thickened, alar cells shorter and broader, curved, forming a small, serrate auricle. Autoicous, perichaetial leaves shorter, paler, more suddenly subulate, more sharply serrate. Seta erect, straight or flexuose, red, 15–25 mm. long; calyptra cucullate; capsule erect, ovoid-cylindric, sometimes contracted below the mouth when dry, 2–3 mm. long, lid rostrate; annulus none; walls with irregular square or hexagonal cells 27–54 μ long $\times$ 27 μ wide; neck short, stomatose; peristome double; teeth incurved, brown, narrow, not perforate, papillose, with slightly trabeculate lamellae; endostome paler, also papillose with a short basal membrane and rudimentary or imperfect cilia, segments shorter than the teeth, not split along the keel; spores green, minutely papillose, unequal in size, 5 μ–16 μ, maturing in winter.

Forming bright glossy mats in shade on trunks and roots of tree-ferns and palms on high mountains, rarely on rocks. Fruit rare!

HABITAT AND TYPE LOCALITY: "On bark and trunks of old trees, Jamaica."

DISTRIBUTION: Jamaica, Cuba, Porto Rico, Haiti, Santo Domingo, St. Kitts, Dominica, Martinique. Guadeloupe, St. Vincent, Montserrat, and Trinidad to Venezuela.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 71;* E. & P. Nat. Pfl. 1^3: 773. *f. 580 J–L.*

EXSICCATAE: Husnot, Pl. Ant. Fr. *183*, as *Meteorium sericeum* Sch.

On account of the rarity of its fruit this species has been placed in a variety of genera none of which seem to me to be correct. Its double peristome and different habit remove it from *Lepyrodon* and its tropical distribution from *Orthothecium*, the species of which are alpine or arctic and subarctic. Its relationship however seems to me to be more with the *Entodontaceae*, where Fleischer

has placed it; the presence of septate gemmae, and the ecostate leaves and more or less imperfect endostome, show its relationship to *Clastobryum indicum* Dozy & Molk. as figured by Brotherus (E. & P. Nat. Pfl. 1^3: 874. *f. 640.* 1907) but the leaf cells are porose and the walls are thickened as shown on the same page in *f. 639* of *C. planulum* Mitt.

Clastobryum americanum Cardot, originally described from Mexico, also occurs on the slopes and summit of Sir John Peak above Cinchona, in the Blue Mountains of Jamaica, and Mr. R. S. Williams has collected it in Bolivia at 8,000 ft. near Cargadera in 1902.

35. THUIDIUM MICROPHYLLUM (Sw.) Jaeg. Adumb. 2: 251. 1876–77

Hypnum microphyllum Sw. Prod. 142. 1788.
Hypnum microphyllum Hedw. Sp. Musc. 269. 1801.
Hypnum microphyllum Sw. Fl. Ind. Occ. 3: 1821. 1806.
Hypnum calyptratum Sull. Pac. R. R. Rep. 4: 190. 1856.

HABITAT AND TYPE LOCALITY: "On roots of trees, Jamaica."

DISTRIBUTION: Canada to Florida and the Bahamas, Jamaica, Cuba, and Mexico.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 69* (from Swartz' type); Sull. l. c. *pl. 100.*

EXSICCATAE: Sull. Musci Cub. Wright. *99.*

36. SEMATOPHYLLUM CAESPITOSUM (Sw.) Mitt. Jour. Linn. Soc. 12: 479. 1869

Hypnum caespitosum Sw. Prod. 142. 1788.
Leskea caespitosa Hedw. Sp. Musc. 233. 1801.
Leskea caespitosa Sw. Fl. Ind. Occ. 3: 1807. 1806.
Rhaphidostegium caespitosum Jaeg. Adumb. 2: 454. 1875–76.
*Hypnum loxense** Sull. Proc. Am. Acad. Arts & Sci. 5: 287. 1861. Not Hooker, 1822.

HABITAT AND TYPE LOCALITY: "On roots of trees, mountains of Hispaniola."

DISTRIBUTION: Cuba, Jamaica, Haiti, Porto Rico, Guadeloupe,

* The real *Sematophyllum loxense* (Hook.) Jaeg. has been found in Cuba.

and Martinique, to Trinidad and South America; also Mexico and Costa Rica.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 49.*

37. SEMATOPHYLLUM PUNGENS (Sw.) Mitt. Jour. Linn. Soc. 12: 477. 1869

Hypnum pungens Sw. Prod. 142. 1788.
Hypnum pungens Hedw. Sp. Musc. 237. 1801.
Leskea pungens Sw. Fl. Ind. Occ. 3: 1806. 1806.
Pungentella pungens C. Müll. Hedwigia 37: 260. 1898.

HABITAT AND TYPE LOCALITY: "Roots of trees in moist woods, mountains of Jamaica."

DISTRIBUTION: Jamaica, Cuba, Porto Rico, Virgin Islands, Guadeloupe, Martinique, and Dominica to South America; also Mexico and Guatemala to Panama.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 60* (from Swartz' type).

EXSICCATAE: Sull. Musci Cub. Wright. *104;* Husnot, Pl. Ant. Fr. *186.*

38. PLEUROPUS CONGESTUS (Sw.) Broth. E. & P. Nat. Pfl. 1^3: 1138. 1908

Hypnum congestum Sw. Prod. 142. 1788.
Hypnum congestum Hedw. Sp. Musc. 283. 1801.
Leskea congesta Sw. Fl. Ind. Occ. 3: 1809. 1806.
Homalothecium congestum Jaeg. Adumb. 2: 311. 1877–78.

HABITAT AND TYPE LOCALITY: "On old trunks of trees, interior of Jamaica."

DISTRIBUTION: Jamaica, Haiti, Montserrat, and Dutch Guiana.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 74. f. 4–7.* 1801.

Excepting for the illustration given by Hedwig, little is known of this species in modern times. Mitten and Brotherus had not seen specimens. At the British Museum there is a specimen labelled "*Leskea congesta* Sw. Ind. Occ. ex *Cl. Swartzio.* J. Vahl," which is evidently a mixture of *Palamocladium leskeoides* and *Clastobryum trichophyllum.* Hedwig's description calls for a plant with entire somewhat secund, falcate leaves and a horizontal capsule, characters which do not agree with either of the species named above.

The synonymy of *Palamocladium* is as follows:

Palamocladium leskeoides (Hook.) E. G. Britton, comb. nov.
Hookeria leskeoides Hook. Musc. Exot. *pl. 55.* 1818.
Leskea Bonplandi Hook.; Kunth. Syn. Pl. Aeq. 1: 61. 1822.
Hypnum Bonplandi C. M. Syn. 2: 463. 1851.
Homalothecium Bonplandi Jaeg. Adumb. 2: 379. 1875–76.
Palamocladium Bonplandi Broth. Bot. Jahrb. 24: 281. 1897.
Isothecium Bonplandi haitense Ren. & Card. MS. in herb.
Pleuropus leskeoides Hook. MS. in Herb.

39. ORTHOSTICHOPSIS TETRAGONA (Sw.) Broth. E. & P. Nat. Pfl. 1[3]: 805. 1906

Hypnum tetragonum Sw. Prod. 142. 1788.
Hypnum? tetragonum Hedw. Sp. Musc. 246. 1801.
Hypnum? tetragonum Sw. Fl. Ind. Occ. 3: 1833. 1806.
Pterigynandrum aureum Brid. Mant. 101. 1819.
Pterigynandrum quadrifarium Brid. Bryol. Univ. 2: 194. 1827.
Isothecium tetragonum Brid. Bryol. Univ. 2: 377. 1827.
Neckera quinquefaria C. Müll. Syn. 2: 124. 1850.
Neckera tetragona C. Müll. Syn. 2: 125. 1850.
Meteorium tetragonum Mitt. Jour. Linn. Soc. 12: 431. 1869.
Pilotrichella tetragona Besch. Mém. Soc. Sci. Nat. Cherbourg 16: 223. 1872.

HABITAT AND TYPE LOCALITY: "On trunks of trees, near summits of mountains in Jamaica."

DISTRIBUTION. Jamaica, Cuba, Santo Domingo, to Trinidad and Guiana; also in Mexico, Guatemala, Honduras, Nicaragua, Costa Rica, and Panama.

ILLUSTRATION: Hedw. Sp. Musc. *pl. 63.* 1801 (from Swartz' type).

This moss is not uncommon in Jamaica and was known to Hans Sloane* and Dillenius,† who called it "the square-branched *Hypnum* from Jamaica." Both of these authors figured it rather poorly.

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* Hist. Jam. 1: 68. *pl. 25. f. 3.* 1707.
† Hist. Musc. 335. *pl. 43. f. 73.* 1741.

40. SCHLOTHEIMIA TORQUATA (Sw.) Brid. Bryol. Univ. 1: 323. 1826

Hypnum torquatum Sw. Prod. 142. 1788.
Hypnum torquatum Hedw. Sp. Musc. 246. 1801.
Neckera torta Sw. Fl. Ind. Occ. 3: 1800. 1806.
Schlotheimia torta Schwaegr. Suppl. 1²: 39. 1816.
Schlotheimia pellucida C. Müll. Bull. Herb. Boiss. 5: 561. 1897.
Schlotheimia undato-rugosa C. Müll. Hedwigia 37: 238. 1898.

HABITAT AND TYPE LOCALITY: "On old mossy trunks of trees in woods, mountains of Jamaica."

DISTRIBUTION: Jamaica and Cuba, 5,000–6,000 ft. alt.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 63. f. 4-7* (from Swartz' type).

EXSICCATAE: Sull. Musci Cub. Wright. *52.*

41. MACROMITRIUM CIRRHOSUM (Sw.) Brid. Bryol. Univ. 1: 316. 1826

Hypnum cirrhosum Sw. Prod. 142. 1788.
Anoectangium cirrhosum Hedw. Sp. Musc. 42. 1801.
Neckera cirrhosa Sw. Fl. Ind. Occ. 3: 1802. 1806.
Schlotheimia cirrosa Schwaegr. Suppl. 3¹. 1827.

HABITAT AND TYPE LOCALITY: "On trunks of trees, temperate parts of Jamaica."

DISTRIBUTION: Jamaica, Cuba, Haiti, Santo Domingo, Porto Rico, St. Kitts, Guadeloupe, Martinique, Montserrat, and Trinidad to South America; also, Guatemala and Panama.

ILLUSTRATIONS: Hedw. Sp. Musc. *pl. 5;* Schwaegr. Suppl. *pl. 201A.*

EXSICCATAE: Sull. Musci Cub. Wright. *51;* Husnot, Pl. Ant. Fr. *144.*

42. THUIDIUM INVOLVENS (Hedw.) Mitt. Jour. Linn. Soc. 12: 575. 1869

Leskea involvens Hedw. Descr. 4: 27. 1794.
Leskea involvens Swartz, Fl. Ind. Occ. 3: 1815. 1806.

HABITAT AND TYPE LOCALITY: "With *Helicodontium capillare* on trunks of trees, interior of Jamaica."

DISTRIBUTION: Jamaica, Cuba, Haiti, Porto Rico, Guadeloupe, and Barbados to South America; also Mexico (Yucatan).

ILLUSTRATION: Hedw. Descr. *pl. 11* (from Swartz' type).

EXSICCATAE: Sull. Musci Cub. Wright. *98*.

43. **Turckheimia linearis** (Sw.) E. G. Britton, comb. nov.

Tortula linearis Sw. Fl. Ind. Occ. 3: 1765. 1806.
Barbula linearis Brid. Mant. Musc. 88. 1819.
Trichostomum lineare Broth. E. & P. Nat. Pfl. 1^3: 394. 1902.

HABITAT AND TYPE LOCALITY: "On dry calcareous rocks, Hispaniola."

DISTRIBUTION: Jamaica, Cuba, and Haiti.

Our specimens from Jamaica and Cuba have a well-developed, slender peristome, which disappears from the old capsules. I believe this species to be congeneric with *Turckheimia guatemalensis* Broth., which also shows traces of a peristome though the capsules are all old. The section of the leaf in *T. linearis* is remarkable for having two rows of guide-cells of about 10 cells each in the costa, with a stereid band both above and below. The costa is rather broader than in *T. guatemalensis* and smooth on the dorsal side, showing as a prominent white rib to the leaf. It is papillose on the upper surface and the cells of the blade bear several minute papillae on both surfaces. This peculiarity of the costa removes *Turckheimia linearis* from *Trichostomum;* and although there is but a single row of guide-cells in *T. guatemalensis*, their macroscopic resemblance is so close that they appear to be congeneric.

44. ISOPTERYGIUM TENERUM (Sw.) Mitt. Jour. Linn. Soc. **12**: 499. 1869

Hypnum tenerum Sw. Fl. Ind. Occ. 3: 1817. 1806.

HABITAT AND TYPE LOCALITY: "On trunks of trees, mountains of Jamaica."

DISTRIBUTION: Jamaica, Cuba, Haiti, Guadeloupe, Martinique, St. Lucia, to Trinidad and South America; also Bermuda, and Louisiana to Florida.

EXSICCATAE: Sull. Musci Cub. Wright. *107*.

According to Dr. Andrews' notes "the Swartz specimens, which are deposited in the collections of the Naturhistoriska Riksmuseum at Stockholm, are distributed through the herbarium of non-Scandinavian mosses, which are, in general, arranged after Paris's Index. Packets are generally uniform, one to many on the herbarium sheet. Swartz' specimens are recognizable by labels in his handwriting included in the packet, by the kind of paper with water-mark to which he pasted them and references of others to the origin of specimens."

We have seen specimens of all but two of these species, and have duplicates of many of them; it is therefore our intention to distribute sets of these and other West Indian mosses, in exchange for other exsiccatae and duplicates from the West Indies, Central America, and South America.

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Explanation of plate 25

Clastobryum trichophyllum (Sw.) E. G. Britton

The figures were drawn from magnifications three times as great as expressed in the numbers, which represent the magnifications of the figures as they stand in the reproduction.

1. Plant, natural size.
2. Portion of branch showing the flagellate branches and gemmae, × 2⅔.
3. Outline of stem leaf, × 16⅔.
4, 5. Outlines of branch leaves, × 16⅔.
6. Apex of leaf, × 108.
7. Basal portion of leaf, showing the auricle, × 108.
8. Median cells, × 263.
9. Apex of leaf showing the pores in the walls of the apical cells, × 263.
10. Cross section of leaf, × 140.
11. Branch with gemmae, × 85.
12. Gemma, × 138.
13. Cross section of stem, × 140.
14. Perichaetial bud, leaves of one side removed to show the paraphyses and archegonia, × 12.
15. Capsule, × 10.
16. Calyptra, × 10.
17. Stoma from base of capsule, × 195.
18. Portion of peristome and upper part of capsule, × 195.
19. Spores, × 195.

Clastobryum trichophyllum (Sw.) E. G. Britton

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WEST INDIAN MOSSES—II

MOSSES OF THE DANISH WEST INDIES AND VIRGIN ISLANDS

ELIZABETH GERTRUDE BRITTON

NEW YORK
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West Indian mosses—II. Mosses of the Danish West Indies and Virgin Islands

Elizabeth Gertrude Britton

(with plate 1)

In February, 1913, Miss Delia W. Marble and I spent four weeks collecting on the island of St. Thomas, while Dr. Britton and Dr. Shafer cruised around among the other islands of the Archipelago in search of cacti and other plants. An account of their trip will be found in the Journal of the New York Botanical Garden.*

As far as we know, no record of any other collection of mosses from these islands exists, excepting the brief account given by Dr. I. Urban† of the collections made by the Rev. Johann Christian Breutel in 1841. Most of Breutel's mosses, 310 numbers, are deposited at the British Museum, but his collections included specimens from St. Thomas, St. Croix, St. Jan, St. Kitts, and Antigua, as well as the collections made in South Africa in 1853–1854. This would account for the large number of specimens preserved in his herbarium, as our experience has shown that the Danish and Virgin Islands are not particularly rich in species of bryophytes.

William Mitten had a few duplicates from Breutel's collections including the following six species: *Calymperes Richardi* C. Müll. (distributed as *C. Afzelii* Sw.), *Hymenostomum Breutelii* (C. Müll.) Broth., *Tortula agraria* (Sw.) Sw., *Philonotis tenella* (C.

* Jour. N. Y. Bot. Garden 14: 99. 1913.

† Symbolae Antill. 3: 28. 1902.

Müll.) Jaeg., *Stereophyllum leucostegum* (Brid.) Mitt. (distributed as *Hypnum Breutelii* Schimp.), and *Taxithelium planum* (Brid.) Mitt. (distributed as *Hypnum Antillarum* Schimp. ms.).

Baron von Eggers collected a few mosses in St. Thomas, St. Jan, and Tortola in 1887, but as far as we know no list of these has been published.

We collected about seventy packets, but found only twenty-eight species, representing twenty-two genera, though we added three new species, a small *Phascum*, a sterile *Hyophila*, and a sterile *Bryum*, which has since been found on Mona Island also.

A brief synonymy with localities and habitat of these species is given in the following enumeration: Nos. 1–4 and 7–9 were determined by Mr. R. S. Williams; Nos. 16 and 17 by M. G. Dismier. Unless otherwise noted the specimens cited were collected by Miss Marble and myself.

1. DICRANELLA LONGIROSTRIS (Schwaegr.) Mitt. Jour. Linn. Soc. Bot. **12**: 30. 1869

ST. JAN: without definite locality, *Breutel*, 1841.

2. LEUCOLOMA SERRULATUM Brid. Bryol. Univ. **2**: 752. 1827

Leucoloma Riedlei Besch. Jour. de Bot. **5**: 146. 1891.

ST. THOMAS: on trees in wet woods, *Riedlé*.

3. OCTOBLEPHARUM ALBIDUM (L.) Hedw. Descr. **3**: 15. 1791

ST. THOMAS: on roots of an *Anthurium*, stone walls, between Pearl and Bonne Resolution near Caret Bay, *1337*.

4. LEUCOBRYUM POLAKOWSKYI (C. Müll.) Cardot, Mém. Soc. Sci. Nat. Cherbourg **32**: 82. 1900

TORTOLA: on rotten wood, Sage Mt., *W. C. Fishlock 83*, May, 1913. Also in Porto Rico, *E. G. Britton 2518*, April, 1913.*

5. FISSIDENS KEGELIANUS C. Müll. Linnaea **21**: 181. 1848

ST. THOMAS and ST. JAN: at base of palms and on the ground, *Breutel*, 1841 (distributed as *F. palmatus* [Sw.] Hedw.). ST. JAN: wet bank, Bethania, *Britton & Shafer 208a*. ST. THOMAS:

* Both these are additions to ranges since the publication of Part 2, Vol. 15, of North American Flora.

moist banks near French wharf; Water Island, Cowell Point, *147;* St. Peter, *38*, *98;* Magin's Bay, *191;* Smith's Bay, *1289*, *1316*, *1459*.

6. FISSIDENS ELEGANS Brid. Spec. Musc. 167. 1806

ST. JAN; on wet rock, Bethania, *Britton & Shafer 361*. ST. THOMAS: Cowell Point, *100*.

7. SYRRHOPODON FLAVESCENS C. Müll. Syn. 1: 541. 1849

ST. JAN: on rotten wood, Bordeaux, 300 m. alt., *Britton & Shafer 549*. TORTOLA: without definite locality, *W. C. Fishlock 82*. May, 1913.

8. CALYMPERES RICHARDI C. Müll. Syn. 1: 524. 1849

Calymperes Breutelii Besch. Ann. Sci. Nat. Bot. VIII. 1: 278. 1895.

Calymperes hexagonum Besch. l. c. 286.

Calymperes Hookeri Besch. l. c. 287.

ST. THOMAS: without definite locality, *Breutel* (type of *C. Breutelii*); without definite locality, *L. C. Richard* (type of *C. hexagonum*); on rocks, summit of ridge, by roadside, north of Charlotte Amalia, *408;* on bank, Cowell Point, *101*. TORTOLA: Roadtown to High Bush, 325 m. alt., *Britton & Shafer 772*.

9. CALYMPERES LONCHOPHYLLUM Schwaegr. Suppl. 1^2: 133. *pl. 98*. 1816

TORTOLA: Sage Mt., *W. C. Fishlock 85a*, May, 1913.

10. HYMENOSTOMUM BREUTELII (C. Müll.) Broth.; E. & P. Nat. Pfl. 1^3: 386. 1902

Weisia Breutelii C. Müll. Syn. 1: 664. 1849. Not Schimp.

Gymnostomum Breutelii Br. & Sch.; Paris, Index Bryol. 542. 1895.

Weisia senocarpa C. Müll. Syn. 2: 633. 1851.

Gymnostomum senocarpum Jaeger, Adumb. 1: 280. 1873.

Hymenostomum senocarpum Paris, Index Bryol. 597. 1895.

Weisia Pabstiana C. Müll. Bot. Zeit. 15: 382. 1857.

Weisia edentula Sull. Proc. Am. Acad. 5: 273. 1861. Not Mitt.

Hymenostomum cubense Hampe; Paris, Index Bryol. Suppl. 189. 1900.

ST. JAN: Emaus, *Breutel* (type locality); wet banks, Bethania, *Britton & Shafer 209;* Rosenberg and Bordeaux, *Britton & Shafer 288, 534, 569.* ST. THOMAS: on the ground, Water Island, *155;* roadside banks, summit of ridge, Bonne Resolution, *1336;* Bordeaux, *1384;* St. Peter, *1258;* top of Flag Hill, *Fitch & Shafer 1494.* TORTOLA: Peter Island, *Britton & Shafer 860.* ANAGADA: without definite locality, *Britton & Shafer 1039*

11. **Hyophila uliginosa** E. G. Britton sp. nov.

Plants attached to rocks in stream, gregarious and matted together by fresh water algae, soft and flaccid when moist; stems simple, about 5 mm. high, branching at apex; leaves much discolored and clogged with mud at base, green and spreading at summit of stems, about 1 mm. long; base hyaline and oblong; apex lingulate and slightly carinate, apiculate; margins plane, entire or rarely denticulate with a few hyaline teeth at apex; costa stout, papillose on back and smooth above ending in the cuspidate point, in section showing one row of ducts and two small bands of stereid cells; basal cells hyaline, oblong or square, up to 16 μ long by 8 μ wide, upper cells obscure up to 5 μ in diameter, green and densely papillose, with several minute papillae on each surface; dioicous; flowers and fruit unknown; propagating by septate gemmae borne in clusters on brown filaments in the axils of the leaves. [PLATE 1, FIG. 1–6.]

TYPE LOCALITY:—ST. JAN: Bethania, *Britton & Shafer 367.*

12. **Phascum sessile** E. G. Britton sp. nov.

Plants annual(?), gregarious in loose bare earth, on banks; stems simple, or branching at base, with several rosettes from one root, 1–2 mm. high; leaves inrolled with conspicuous yellowish-white costa when dry, bright green in color and spreading when moist, few, 8–12, oblong at base, obovate above, 1–1.25 mm. long by 0.4–0.5 mm. wide; costa percurrent or excurrent into a short cuspidate point, terete and smooth on back, with a narrow dorsal stereid band and 2–3 rows of large ducts; margins entire or finely crenulate and papillose; upper cells hexagonal, up to 13 μ in diameter, densely chlorophyllose with 1–3 papillae on each surface; lower cells hyaline, oblong, 10–12 rows, up to 40 μ long, not papillose, occasionally curved and yellow and slightly auriculate at basal angles; paroicous, antheridia few, with paraphyses, in small buds below or near the archegonia, of which occasionally several are fertilized making 2–3 fruits on one plant; calyptra small, conic, split, slightly papillose at apex; capsule immersed,

sessile on a small brown vaginule, globose, 0.5 mm. in diameter, sharply apiculate, indehiscent; walls with irregular hexagonal cells, 27–32 μ in diameter; spores brown, slightly roughened, 27–30 μ in diameter, maturing in spring. [PLATE 1, FIG. 7–13.]

TYPE LOCALITY:—ST. THOMAS: Cowell Point, *E. G. Britton 99*, February 2, 1913.

DISTRIBUTION:—ST. THOMAS: Water Island, *150*, *156*.

This species belongs to the section *Microbryum* and is close to *P. Floerkeanum*, but differs in the less acuminate and less subulate leaves with plane margins without a yellow border, and more chlorophyllose and papillose cells.

13. TORTULA AGRARIA (Sw.) Sw. Fl. Ind. Occ. 3: 1763. 1806

ST. JAN: Bethania, *Breutel;* Bethania, *Britton & Shafer 241*, *268*. ST. THOMAS: on limestone walls of old cemeteries, *Breutel;* on damp earth, Nisky, *77;* Cowell Point, *97;* old walls, Crown Estate, 450 m. alt., *1369;* on rocks at waterfall, Magen's Bay, *1315;* stone walls, Bonne Resolution School, *442*.

14. **Bryum micro-decurrens** E. G. Britton sp. nov.

Plants gregarious, in loose soil, brown at base and also more or less brown above, from the excurrent awns; stems dull green, slender, erect and mostly simple, unbranched, not more than 5 mm. high, matted with brown tomentum at base; leaves erect-appressed when dry, not twisted nor glossy; spreading when moist, less than 1 mm. long by 0.2 mm. wide; costa wide at base 40 μ (at least .2 width of leaf), excurrent into a short subulate brown awn, slightly toothed at apex and on awn; cells of blade hexagonal, 27–40 μ long × 10 μ wide, basal cells shorter, oblong, *with a long, decurrent narrow wing of one row of cells, extending down the stem to the next leaf;* margins bordered by one row of longer narrow cells 5 μ × 54 μ long, slightly revolute below and serrulate above; only known from sterile specimens.

TYPE LOCALITY:—ANAGADA: rocky plain near settlement, *Britton & Shafer 1038*.

DISTRIBUTION:—Mona Island, *Britton & Hess 1751*, *1753*.

These specimens have been compared with type specimens of *B. decursivum* C. Müll. from Porto Rico, kindly loaned to us by Dr. Engler from the Royal Botanical Garden at Berlin, and, though closely related by the decurrent narrow basal wing, ours differs in its shorter leaves, serrate margins and shorter cells.

15. BRYUM CRUEGERI Hampe; C. Müll. Syn. 1: 300. 1849

Dioicous plants bright yellowish green, shining gregarious in loose soil in gravelly bed of stream; stems short, less than 1 cm. high, upper part of stem erect, base decumbent red and radiculose; leaves light yellowish green, glossy, spreading, lanceolate, acute or acuminate, 2 mm. long × 0.35–0.5 mm. broad; costa narrow, ending in the carinate, mucronate apex, margins entire below slightly serrulate at apex, not bordered nor revolute; cells hexagonal 54–108 μ long × 13 μ broad, a few alar, shorter and broader, square or oblong, not decurrent; sterile but often propagating by gemmae.

ST. THOMAS: in bed of stream at Tutu, *422*.

Compared with *Chas. Wright 63* from Cuba, distributed as *B. ovalifolium* Sull., the leaves are slightly narrower and less concave, but they are evidently closely related species and both belong with the group of tropical American species having glossy leaves, and flaccid red stems, resembling a *Pohlia*. They grow mostly along streams and form a closely related group, of which *B. ripense* C. Müll. from Jamaica is also a member.

16. PHILONOTIS SPHAEROCARPA (Sw.) Brid. Bryol. Univ. 2: 25. 1827

ST. THOMAS: moist banks, Bonne Resolution *421;* Crown Estate, 450 m. alt., *1368*, *1458*.

17. PHILONOTIS TENELLA (C. Müll.) Jaeger, Adumb. 1: 541. 1873–1874

ST. JAN: on wet banks, near Corallenburg, *Breutel*, 1841; Bethania, *Britton & Shafer 208*. TORTOLA: near Roadtown, 325 m. alt., *Britton & Shafer 773*.

18. PIREELLA CYMBIFOLIA (Sull.) Cardot, Rev. Bryol. 40: 17. 1913

ST. JAN: on wet rock near Bethania, *Britton & Shafer 359*.

19. PTEROBRYUM ANGUSTIFOLIUM (C. Müll.) Mitt. Jour. Linn. Soc. Bot. 12: 426. 1869

TORTOLA: High Bush, *Eggers 3240a*, December, 1887; Sage Mt., *W. C. Fishlock 85*, May, 1913.

20. NECKERA DISTICHA (Sw.) Hedw. Descr. 3: 53. 1792

ST. THOMAS: on rocks at St. Peter, *1456*. TORTOLA: on rock in forest, High Bush, 375 meters alt., *Britton & Shafer 841*.

21. NECKERA JAMAICENSE (Gmel.) E. G. Britton, Bull. Torrey Club 40: 656. 1913

ST. JAN: on bark of trees at Bethania, *Britton & Shafer 364*.

22. CALLICOSTELLA BELANGERIANA (Besch.) Jaeger, Adumb. 2: 257. 1874–1875

ST. JAN: on stones, Bordeaux, 300 meters alt., *Britton & Shafer 548*.

23. STEREOPHYLLUM LEUCOSTEGUM (Brid.) Mitt. Jour. Linn. Soc. Bot. 12: 543. 1869

ST. JAN: Emaus, *Breutel;* Bethania, *Britton & Shafer 1357*. ST. THOMAS: on rocks in shade, ravine at Tutu, *1291*; waterfall near Magen's Bay, *1314*.

24. MITTENOTHAMNIUM DIMINUTIVUM (Hampe) E. G. Britton, Bryologist 17: 9. 1914

ST. JAN: on dead wood, Bordeaux, 400 m. alt., *Britton & Shafer 595*.

25. TAXITHELIUM PLANUM (Brid.) Mitt. Jour. Linn. Soc. Bot. 12: 496. 1869

ST. JAN: *Breutel;* Bethania, *Britton & Shafer 358, 365, 366;* Bordeaux, 400 m. alt., *Britton & Shafer 568, 580*. ST. THOMAS: St. Peter, *1259;* Crown Estate, *1366*. TORTOLA: High Bush, *Britton & Shafer 839*.

26. SEMATOPHYLLUM ADMISTUM (Sull.) Mitt. Jour. Linn. Soc. Bot. 12: 485. 1869

ST. JAN: Bordeaux, 300 m. alt., *Britton & Shafer 554, 556, 578, 579*. ST. THOMAS: St. Peter, on rocks, *1257, 1457*. TORTOLA: High Bush, 375 m. alt., *Britton & Shafer 814, 840*.

27. SEMATOPHYLLUM SERICIFOLIUM Mitt. Jour. Linn. Soc. Bot. 12: 483. 1869.

TORTOLA: on logs in forest, High Bush, 375 m. alt., *Britton & Shafer 819*

28. HAPLOCLADIUM MICROPHYLLUM (Sw.) Broth.; E. & P. Nat. Pfl. 1^3: 1007. 1907

ST. THOMAS: shaded bank, Pearl to Bonne Resolution, *1335*.

Explanation of plate 1

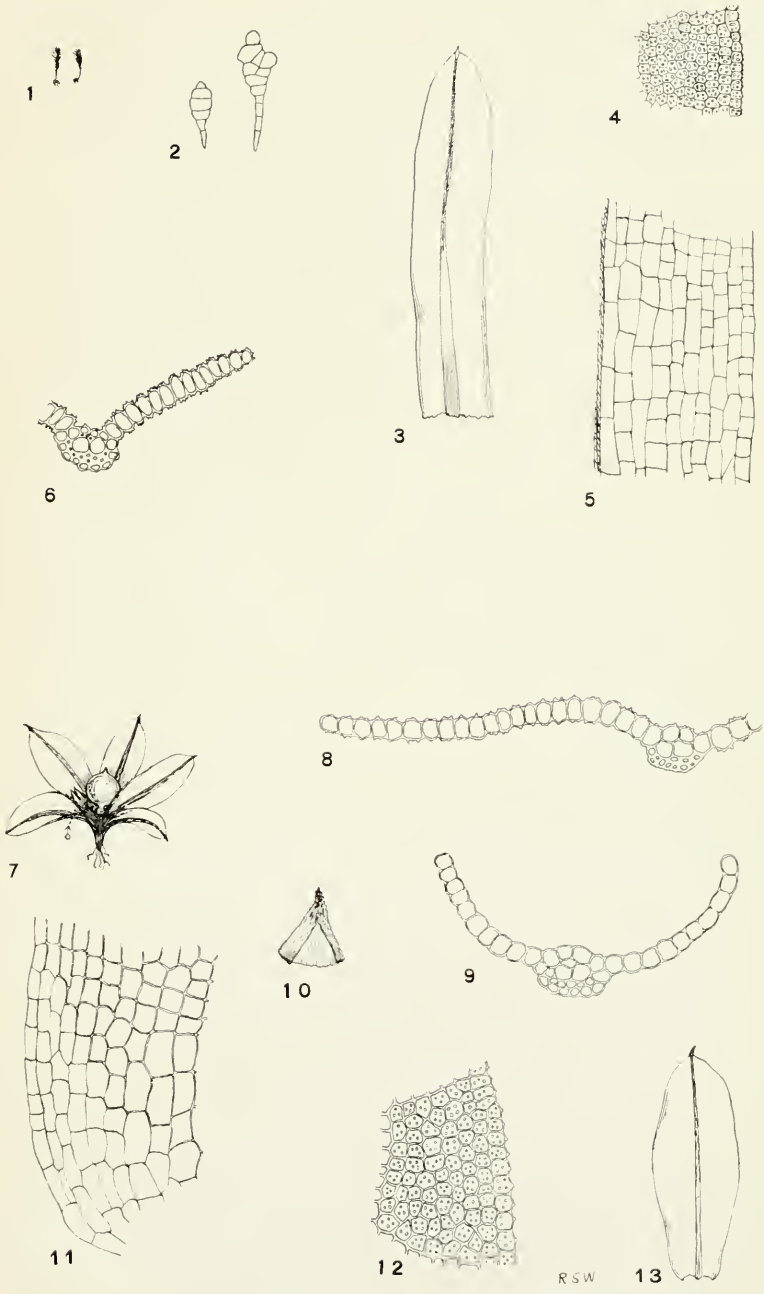
The figures were drawn by Mr. R. S. Williams from magnifications twice as great as expressed in the numbers, which represent the magnification of the figures as they stand in the reproduction.

HYOPHILA ULIGINOSA E. G. Britton

FIG. 1. Plant, natural size.
FIG. 2. Propagula, × 35.
FIG. 3. Upper leaf, × 35.
FIG. 4. Cells in upper part of leaf, × 200.
FIG. 5. Cells of leaf base, × 200.
FIG. 6. Cross section in upper part of leaf, × 200.

PHASCUM SESSILE E. G. Britton

FIG. 7. Plant, × 11.
FIG. 8. Cross-section in upper part of leaf × 200.
FIG. 9. Cross-section near leaf base. × 200.
FIG. 10. Calyptra, × 35.
FIG. 11. Cells at basal angle, × 200.
FIG. 12. Cells in upper part of leaf. × 200.
FIG. 13. Upper leaf, × 20.



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7–13. PHASCUM SESSILE E. G. BRITTON

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